What is claimed is:-

1. A method of indicating extant battery life, the method comprising the steps of: -

(a) initially determining a first extant battery life value having a first confidence level;

(b) generating a perceivable indication of said first battery life value;

(c) determining a second extant battery life value having a second confidence level; and

(d) generating a perceivable indication of said second battery life value after generating the perceivable indication of said first battery life value,

wherein the second confidence level is higher than said first confidence level and said determination of said first extant battery life value is completed before said determination of said second extant battery life value is completed.

2. A method according to claim 1, wherein the manner of indicating the second battery life value is different from the manner of indicating the first battery life value.

3. A method according to claim 1, wherein the first and second battery life values are indicated visually.

4. A method according to claim 1, wherein the first extant battery life value is determined on the basis of an average of a plurality of battery voltage readings.

5. A method according to claim 4, wherein the first extant battery life value is read from a lookup table in dependence on said average.

6. A method according to claim 1, wherein the second extant battery life value is determined on the basis of a plurality of time-spaced battery voltage readings.

7. A method according to claim 6, wherein said second extant battery life value *t* calculated on the basis of three voltage readings according to the formula:

$$t = \frac{\ln\left(\frac{(\Phi - V_T)}{\xi}\right)}{\ln \alpha}$$

where:

$$\alpha = e^{\frac{\ln\left[\frac{V_1 - V_2}{V_0 - V_1}\right]}{\Delta t}}$$

$$\xi = \frac{(V_0 - V_1)^2}{2V_1 - V_2 - V_0}$$

$$\Phi = V_0 - \frac{(V_0 - V_1)^2}{2V_1 - V_2 - V_0}$$

where V_0, V_1 and V_2 are the initial, middle and last voltage readings, Δt is the time between the initial and middle voltage readings and between the middle and last voltage readings and V_T is the minimum acceptable battery voltage.

8. A method according to claim 4, wherein the second extant battery life value is determined on the basis of a plurality of time spaced battery voltage readings and the first of said time spaced readings is used for calculating said average.

9. A method of indicating extant battery life for a battery powered apparatus, the method comprising the steps of: -

(a) determining a first extant battery life value having a first confidence level during operation of an apparatus in a first mode;

(b) generating a perceivable indication of said first battery life value;

(c) determining a second extant battery life value having a second confidence level during operation of an apparatus in a second mode; and

(d) generating a perceivable indication of said second battery life value after generating the perceivable indication of said first battery life value,

wherein the second confidence level is higher than said first confidence level and said first mode places a greater current demand on the battery than the second mode.

10. A method according to claim 9, wherein the manner of indicating the second battery life value is different from the manner of indicating the first battery life value.

11. A method according to claim 9, wherein the first and second battery life values are indicated visually.

12. A method according to claim 9, wherein the first extant battery life value is determined on the basis of an average of a plurality of battery voltage readings.

13. A method according to claim 12, wherein the first extant battery life value is read from a lookup table in dependence on said average.

14. A method according to claim 9, wherein the second extant battery life value is determined on the basis of a plurality of time-spaced battery voltage readings.

15. A method according to claim 14, wherein said second extant battery life value t calculated on the basis of three voltage readings according to the formula:

$$t = \frac{\ln\left(\frac{(\Phi - V_T)}{\xi}\right)}{\ln \alpha}$$

where:

$$\alpha = e^{\frac{\ln\left[\frac{V_1 - V_2}{V_0 - V_1}\right]}{\Delta t}}$$

$$\xi = \frac{(V_0 - V_1)^2}{2V_1 - V_2 - V_0}$$

$$\Phi = V_0 - \frac{(V_0 - V_1)^2}{2V_1 - V_2 - V_0}$$

where V_0, V_1 and V_2 are the initial, middle and last voltage readings, Δt is the time between the initial and middle voltage readings and between the middle and last voltage readings and V_T is the minimum acceptable battery voltage.

16. A method according to claim 12, wherein the second extant battery life value is determined on the basis of a plurality of time spaced battery voltage readings and the first of said time spaced readings is used for calculating said average.

17. A battery-powered apparatus including terminals for connections to a battery, a voltage sensor configured to sense the output voltage of a battery connected to said terminals, an indicator and a processor for controlling the indicator to indicate the extant life of a battery, connected to said terminals, in dependence on the output of the voltage sensor, wherein the processor is configured to: -

(a) initially determine a first extant battery life value having a first confidence level on the basis of the output of the voltage sensor;

(b) control the indicator to indicate said first battery life value;

(c) determine a second extant battery life value having a second confidence level, higher than the first confidence level, on the basis of the output of the sensor; and

(d) control the indicator to indicate said second battery life value after indication of said first battery life value, and

said determination of said first extant battery life value is completed before said determination of said second extant battery life value is completed.

18. An apparatus according to claim 17, wherein the processor is configured to control the indicator such that the manner of indicating the second battery life value is different from the manner of indicating the first battery life value.

19. An apparatus according to claim 17, wherein the indicator is a display device.

20. An apparatus according to claim 17, wherein the processor is configured to determine the first extant battery life value on the basis of an average of a plurality of battery voltage readings.

21. An apparatus according to claim 20, including a memory storing a lookup table relating battery voltage readings to extant battery life values, wherein the processor is configured to read the first extant battery life value from the lookup table in dependence on said average.

22. An apparatus according to claim 17, wherein the processor is configured to calculate the second extant battery life value on the basis of a plurality of time-spaced outputs from said voltage sensor.

23. An apparatus according to claim 22, wherein said second extant battery life value is calculated on the basis of three voltage readings according to the formula:

$$t = \frac{\ln\left(\frac{(\Phi - V_T)}{\xi}\right)}{\ln \alpha}$$

where:

$$\alpha = e^{\frac{\ln\left[\frac{V_1 - V_2}{V_0 - V_1}\right]}{\Delta t}}$$

$$\xi = \frac{(V_0 - V_1)^2}{2V_1 - V_2 - V_0}$$

$$\Phi = V_0 - \frac{(V_0 - V_1)^2}{2V_1 - V_2 - V_0}$$

where V_0, V_1 and V_2 are the initial, middle and last voltage readings, Δt is the time between the initial and middle voltage readings and between the middle and last voltage readings and V_T is the minimum acceptable battery voltage.

24. An apparatus according to claim 20, wherein the processor is configured to determine the second extant battery life value is determined on the basis of a plurality of time spaced battery voltage readings and calculate said average using the first of said time spaced readings.

25. A battery-powered apparatus including terminals for connections to a battery, voltage sensor configured to sense the output voltage of a battery connected to said terminals, an indicator and a processor for controlling the indicator to indicate the extant life of a battery, connected to said terminals, in dependence on the output of the voltage sensor, wherein the processor is configured to: -

(a) determine a first extant battery life value having a first confidence level on the basis of the output of the voltage sensor when the apparatus is operating in a first mode;

(b) control the indicator to indicate said first battery life value;

(c) determine a second extant battery life value having a second confidence level, higher than the first confidence level, on the basis of the output of the sensor when the apparatus is operating in a second mode; and

(d) control the indicator to indicate said second battery life value after indication of said first battery life value, and

said second mode is characterised by a higher current demand being placed on the battery powering the apparatus than that placed on the battery by said first mode.

26. An apparatus according to claim 25, wherein the processor is configured to control the indicator such that the manner of indicating the second battery life value is different from the manner of indicating the first battery life value.

27. An apparatus according to claim 25, wherein the indicator is a display device.

28. An apparatus according to claim 25, wherein the processor is configured to determine the first extant battery life value on the basis of an average of a plurality of battery voltage readings.

29. An apparatus according to claim 28, including a memory storing a lookup table relating battery voltage readings to extant battery life values, wherein the processor is configured to read the first extant battery life value from the lookup table in dependence on said average.

30. An apparatus according to claim 25, wherein the processor is configured to calculate the second extant battery life value on the basis of a plurality of time-spaced outputs from said voltage sensor.

31. An apparatus according to claim 30, wherein said second extant battery life value is calculated on the basis of three voltage readings according to the formula:

$$t = \frac{\ln\left(\frac{(\Phi - V_T)}{\xi}\right)}{\ln \alpha}$$

where:

$$\alpha = e^{\frac{\ln\left[\frac{V_1 - V_2}{V_0 - V_1}\right]}{\Delta t}}$$

$$\xi = \frac{(V_0 - V_1)^2}{2V_1 - V_2 - V_0}$$

$$\Phi = V_0 - \frac{(V_0 - V_1)^2}{2V_1 - V_2 - V_0}$$

where V_0, V_1 and V_2 are the initial, middle and last voltage readings, Δt is the time between the initial and middle voltage readings and between the middle and last voltage readings and V_T is the minimum acceptable battery voltage.

32. An apparatus according to claim 28, wherein the processor is configured to determine the second extant battery life value is determined on the basis of a plurality of time spaced battery voltage readings and calculate said average using the first of said time spaced readings.

33. A mobile telephone including terminals for connections to a battery, a voltage sensor configured to sense the output voltage of a battery connected to said terminals, an indicator and a processor for controlling the indicator to indicate the extant life of a battery, connected to said terminals, in dependence on the output of the voltage sensor, wherein the processor is configured to: -

(a) initially determine a first extant battery life value having a first confidence level on the basis of the output of the voltage sensor;

(b) control the indicator to indicate said first battery life value;

(c) determine a second extant battery life value having a second confidence level, higher than the first confidence level, on the basis of the output of the sensor; and

(d) control the indicator to indicate said second battery life value after indication of said first battery life value, and

said determination of said first extant battery life value is completed before said determination of said second extant battery life value is completed.

34. A mobile telephone according to claim 33, wherein the processor is configured to control the indicator such that the manner of indicating the second battery life value is different from the manner of indicating the first battery life value.

35. A mobile telephone according to claim 33, wherein the indicator is a display device.

36. A mobile telephone according to claim 33, wherein the processor is configured to determine the first extant battery life value on the basis of an average of a plurality of battery voltage readings.

37. A mobile telephone according to claim 36, including a memory storing a lookup table relating battery voltage readings to extant battery life values, wherein the processor is configured to read the first extant battery life value from the lookup table in dependence on said average.

38. A mobile telephone according to claim 33, wherein the processor is configured to calculate the second extant battery life value on the basis of a plurality of time-spaced outputs from said voltage sensor.

39. A mobile telephone according to claim 38, wherein said second extant battery life value is calculated on the basis of three voltage readings according to the formula:

$$t = \frac{\ln\left(\frac{(\Phi - V_T)}{\xi}\right)}{\ln \alpha}$$

where:

$$\alpha = e^{\frac{\ln\left[\frac{V_1 - V_2}{V_0 - V_1}\right]}{\Delta t}}$$

$$\xi = \frac{(V_0 - V_1)^2}{2V_1 - V_2 - V_0}$$

$$\Phi = V_0 - \frac{(V_0 - V_1)^2}{2V_1 - V_2 - V_0}$$

where V_0, V_1 and V_2 are the initial, middle and last voltage readings, Δt is the time between the initial and middle voltage readings and between the middle and last voltage readings and V_T is the minimum acceptable battery voltage.

40. A mobile telephone according to claim 36, wherein the processor is configured to determine the second extant battery life value is determined on the basis of a plurality of time spaced battery voltage readings and calculate said average using the first of said time spaced readings.

41. A mobile telephone including terminals for connections to a battery, voltage sensor configured to sense the output voltage of a battery connected to said terminals, an indicator and a processor for controlling the indicator to indicate the extant life of a battery, connected to said terminals, in dependence on the output of the voltage sensor, wherein the processor is configured to: -

(a) determine a first extant battery life value having a first confidence level on the basis of the output of the voltage sensor when the apparatus is operating in a first mode;

(b) control the indicator to indicate said first battery life value;

(c) determine a second extant battery life value having a second confidence level, higher than the first confidence level, on the basis of the output of the sensor when the apparatus is operating in a second mode; and

(d) control the indicator to indicate said second battery life value after indication of said first battery life value, and

said second mode is characterised by a higher current demand being placed on the battery powering the apparatus than that placed on the battery by said first mode.

42. A mobile telephone according to claim 41, wherein the processor is configured to control the indicator such that the manner of indicating the second battery life value is different from the manner of indicating the first battery life value.

43. A mobile telephone according to claim 41, wherein the indicator is a display device.

44. A mobile telephone according to claim 41, wherein the processor is configured to determine the first extant battery life value on the basis of an average of a plurality of battery voltage readings.

45. A mobile telephone according to claim 44, including a memory storing a lookup table relating battery voltage readings to extant battery life values, wherein the processor is configured to read the first extant battery life value from the lookup table in dependence on said average.

46. A mobile telephone according to claim 41, wherein the processor is configured to calculate the second extant battery life value on the basis of a plurality of time-spaced outputs from said voltage sensor.

47. A mobile telephone according to claim 46, wherein said second extant battery life value is calculated on the basis of three voltage readings according to the formula:

$$t = \frac{\ln\left(\frac{(\Phi - V_T)}{\xi}\right)}{\ln \alpha}$$

where:

$$\alpha = e^{\frac{\ln\left[\frac{V_1 - V_2}{V_0 - V_1}\right]}{\Delta t}}$$

$$\xi = \frac{(V_0 - V_1)^2}{2V_1 - V_2 - V_0}$$

$$\Phi = V_0 - \frac{(V_0 - V_1)^2}{2V_1 - V_2 - V_0}$$

where V_0, V_1 and V_2 are the initial, middle and last voltage readings, Δt is the time between the initial and middle voltage readings and between the middle and last voltage readings and V_T is the minimum acceptable battery voltage.

48. A mobile telephone according to claim 44, wherein the processor is configured to determine the second extant battery life value is determined on the basis of a plurality of time spaced battery voltage readings and calculate said average using the first of said time spaced readings.